THE ARCHITECTURE OF THE BRIDGES OF LONDON.

By Professor Beresford Pite [*F.*].

Read before the Royal Institute of British Architects, Monday, 18th May 1908.

THE architectural assets of London are neither few nor mean. This vast collection of buildings includes very many of individual value, and quite a considerable number of these are of supreme importance and decided beauty. London may be said to resemble an annual summer exhibition of the Royal Academy in that as a collection it is indigestible in quantity and, inevitably, extraordinarily uneven in quality. Though the exhibition as a whole is a refinement of the collection submitted to the Council, there would be no difficulty in conceiving an elimination of the annual exhibition which would produce, in a residuum of work of importance and eminent charm, a small collection which could more safely challenge attention and enlightened criticism than the bulk. Though there was in the case of London no preliminary sanction, corresponding with the function of providing for only the survival of the fittest, so naturally exercised by the Royal Academy, the resulting collection of architectural exhibits would, without doubt, under an eliminating survey assure us that we have, in our midst and about us, as fine examples of architectural achievement, of magnificent and picturesque extent, as was possessed by any other capital of the world, Rome not even excepted. Abating the interest, inherent, indefinite but very real, of the historic element for which in Europe Rome is unrivalled, London can cite, after castle for castle and cathedral for cathedral, an abbey of unrivalled artistic merits, churches, ancient and modern, in multitudes, chambers of legislation worthy of a world-empire, public and private palaces of business, commerce, and social life, and houses of peculiar charm. All this of London needs only that separation from the overwhelming tide of commonplace and brainless exercises among which it is exhibited, in order that the many and great qualities of architectural value which it possesses may be recognised and rightly appraised.

Let us take heart as to our standing before the world, and collect our treasures mentally into a composition of examples of the many architectural schools represented in London. For a moment group the mediæval monuments in this one city, and, after Westminster Abbey, without peer, so illustrative of all the vitalities of ancient building art, place Westminster Hall, as uniquely glorious in its roof; then the Tower, the grandest and most useful mediæval castle of these islands, commanding the port and population at once; add the Temple Church, St. Mary Overie Southwark, St. Bartholomew Smithfield, St. John's Gateway, Lambeth and Fulham Palaces, and the Charterhouse; do not forget the half-timbered Staple Inn in Holborn, and we have cited enough Gothic art to make a pilgrimage worth while to any mediæval enthusiast, and all yet fulfilling the original purposes of their foundation. The great era of the Renaissance has examples of its rising phases in Hampton Court, Holland

House, and the Middle Temple, while its masters bequeath us pregnant fragments in St. Paul's Covent Garden, the Banqueting House Whitehall, and York Water Gate, and unrivalled wealth in Wren's grouped multitude of churches. St. Paul's Cathedral has a complementary group in the solid dream palace of Greenwich, and the two mentally envisioned may rival the Vatican. Then consider Hampton Court and Kensington in passing to the crowning group of Somerset House, and while shedding a tear for old Newgate, ask what city need be ashamed of claiming pre-eminence for its Renaissance monuments while possessing such as these.

Allow a small chronological hiatus to be supplied presently and collect the London Exhibition of the Victorian art movement, which may well begin with the modern Renaissance of Gothic at the Palace at Westminster, a vision of picturesque dignity unrivalled in Europe, the inconsequent but grand St. Pancras Hotel and Station, and the powerfully individualistic Courts of Justice, a singular testimony to us of the blind enthusiasms of our own masters. Add the Albert Memorial and a park of selected churches, monuments of knowledge, art, and devotion. Besides this Gothic fever, the still potent Greek school could collect for its Acropolis the Propylæum of Euston Station, the British Museum, University College, the General Post Office, the National Gallery, St. Pancras and some great suburban churches, with many remarkable City buildings, as the Sun Fire Office and its neighbour. The Italian school, even when receding from popularity, could show the Reform Club, Dorchester and Bridgewater Houses, then Burlington House and Burlington Gardens, St. Thomas's Hospital, other club palaces, and all the work of its present reassertion mixed in an English mould in the later public offices. What a "Ring" could not London deck out with such altogether modern interests as are reflected in the Albert Hall, Old and New Science Colleges, Natural History Museum, Westminster Cathedral, Victoria and Albert Museum, London University, Scotland Yard, and Whitehall Court. One would fain picture the residential quarter of selected specimens of domestic architecture, from Adam to Norman Shaw, piquant and attractive, vital with the undercurrent of intimate comfort and sweetness that marks the English home. But there is no need to further enlarge on the wealth of London's architecture; elimination and collection will assure us of the artistic position of the city, just as a necessarily similar process is required to gauge the movement of English art by a series of Royal Academy exhibitions.

That impression of superior attractiveness which foreign capitals possess to English eyes lies more frequently in the arrangement and complete planning of the main avenues and public places than in the individual excellences of the buildings. Liberty-loving Britons have yet much to be taught of the blessedness of architectural despotism. Paris, Vienna, and Berlin differ fundamentally from London in their expression of the municipal organisation of architecture. The glories of the Champs-Élysées, of the "Ring," or of Unter den Linden will be sought in vain here; the limits of the greatest achievements of modern ideals and energy prove how insuperable in the case of London are the difficulties in the path of the greater municipal improvements in which such architectural effects are to be sought.

But the river has provided our metropolis with a thoroughfare, about one thousand feet in breadth, the main artery of its very core, which has scale, grandeur of line, organic union with the city, and a revelation of its whole architectural development that is grander than any of the masterpieces of civil planning that we have instanced from the Continent. The redemption of the northern tidal shore by the Embankment wall, with the resulting spaciousness between the buildings and the river, has in our own day added to the natural artistic wealth of London, and we now hold a position in which, without vanity, our architectural horn may be lifted up and our trumpet blown with confidence.

This review of the architectural assets of London and of the value of the Thames, which as a river, let us remember, is by far the finest available in Europe for a city of first-class

magnitude, brings us directly to the consideration of its bridge architecture. Perhaps, without the confidence given by an extended but select review of historical monuments or of the majestic river itself, we turn and reflect that this very majesty of scale in width, these grandly curving tidal shores, are furnishing problems in design which will, and must, reveal that shortness of grasp, inexperience in æsthetic, and stolid freedom of imagination which we know of a certainty characterise our national architecture of serious scale. The happy accident, often called the picturesque, the affectation, learned and deeply humorous, of antiquity, cannot in bridge architecture effectively come to our aid; these qualities, which so continually of late have served the purposes of the architect, cannot endure the strenuous purpose of the bridge constructor, and though an ardent mediævalist may have insight enough to redream with active motive the domestic or ecclesiastical life of the past, a vital mediæval London Bridge would be as impossible of achievement amid tide and traffic nowadays as the characteristic though gory decoration of traitors' or Lollards' heads on spikes above its gateways.

London has at least twenty-one bridges over the Thames, counting from the Tower to Hammersmith, with which to answer our expectations of failure: of these, fourteen are public road bridges and seven are for railways. All have been erected within the compass of a century, beginning with the commencement of that now named Waterloo in 1811, and concluding with the opening of Vauxhall in 1906. The railway bridges all come within the latter half of the century, commencing with Charing Cross in 1860, followed by the West London Railway in 1863, Putney Railway Bridge, the latest, being opened in 1889.

In a general preliminary view it may appear that the masonry bridges alone count as works of architecture, mainly on account of their material, the principles on which they have been therefore designed, and perhaps also on account of their monumental permanence. To the earliest therefore of the series these initial qualities of architectural works belong.

It is admittedly doubtful if the architecture of the first quarter of the last century has any distinctive quality or character to obtain for it recognition in our day of antiquarian and traditional enthusiasms. The final quarter of the eighteenth century had produced Somerset House, which has perhaps been regarded as the climax and finale of the later Renaissance tradition in England; the preliminary marshalling of the forces which resulted in the Gothic revival was then taking place, to be engaged erelong in the conflict of the styles, mainly with the nascent Neo-Greek movement, already founded upon the publications of Stuart and Revett for the Dilettanti Society, by Wilkins first and subsequently by Cockerell. The exhaustion of the long European wars, with the relaxation and social sluggishness engendered by the long peace that ensued, have appeared to us as reflected in the lifeless condition of the building arts, and we connote no architectural work of first-rate importance with the period between the completion by Sir Wm. Chambers of Somerset House in 1786 and the competition for the Houses of Parliament half a century later. Yet to this generation belong two works, each of colossal magnitude, witnessing to a purity of taste, refinement of architectural knowledge, and power of constructive skill in achievement to which England had not heretofore attained.

These two works enable us to claim, for the London even of to-day, the possession of the most beautiful bridges erected in the world, clear in their appeal to the catholic instinct of beauty and admitting their city and constructors to recognition in any review of famous architectural monuments. We could pass the bridges of the world in review without finding a pair of successful rivals to these works of the early nineteenth century, an epoch to which we have not afforded due recognition. Thus enabled we worthily supply the hiatus in our chronological review between the close of the Renaissance influence and the new life of

Victorian Gothic with two masterpieces, Waterloo Bridge being completed in 1817 and London Bridge in 1831.

At the beginning of the nineteenth century additional bridge accommodation was a recognised necessity, for we find that, besides the two great stone bridges just dealt with, the advent of iron as a practicable material was early witnessed by its adoption in the erection of Vauxhall and Southwark Bridges, the former occupying from 1811 to 1816 and the latter from 1814 to 1819. Thus three new bridges were in course of erection overlapping one another. Waterloo and Vauxhall commenced in the same year, and Southwark two years before the completion of the latter. The three old bridges of Westminster, Blackfriars, and London were thus doubled before the rebuilding of the last named was undertaken; four bridges being thrown over the river in the twenty years which elapsed between the commencement of Waterloo and Vauxhall in 1811 and the completion of London Bridge in 1831.

A rest of twenty years then ensued, and another period of bridge-building begins. Again a similar span of twenty years which includes the erection of six bridges, embracing the rebuilding of two and the addition of four new bridges above the former limit of London extension. It begins with the rebuilding of Westminster from 1854 to 1862, and includes the erection of Chelsea Suspension Bridge, opened in 1858, and Lambeth, also suspension, in 1862, then the rebuilding of Blackfriars from 1864 to 1869, the Albert Bridge, in hand from 1863 to 1873, and Wandsworth Bridge, opened also in the latter year. All the six thus named in this second epoch of twenty years, like the first series, are road traffic bridges, but none wholly of masonry.

During this second era of bridge building and entirely covered by the decade of the sixties we have a group of five railway bridges. The series commences with the first instalment of the Pimlico or Grosvenor Road Bridge, 1859 to 1860; then Charing Cross, 1860 to 1864; then the Chatham and Dover bridge at Blackfriars, opened in the latter year, followed by Cannon Street, the widened Grosvenor Road, and the West London Railway at Battersea, all completed in 1866. The total addition to the Thames bridges in the twenty years between 1853 and 1873 is the not inconsiderable number of eleven, more than half the total of twenty-one that we have under review.

Two railway bridges remain, the St. Paul's Station bridge, alongside but not connected with and dissimilar in design from the Blackfriars railway bridge, opened in 1886, and the District Railway extension to Putney, opened in 1889.

Then follows another group of road bridges beginning with the third, alas! only of masonry, the finely simple public bridge at Putney, commenced in 1883 and opened in 1886; Hammersmith Bridge, rebuilt in 1887; Battersea in 1890; then the most significant of the whole series, the bascule bridge at the Tower, like all important achievements the child of heated controversy, in 1894. This decade had thus yielded six bridges, the thirty years which terminated with it having witnessed continuous bridge building and produced seventeen, an average of more than one bridge every two years.

A cessation of practical result followed for twelve years in which only the temporary wooden bridge at Millbank was erected and removed, and the last, but not least, to date, is Vauxhall Bridge, rebuilt and opened in 1906, after a life of ninety years, perhaps a parable of the practicable duration of iron structures in public usefulness.

At the present time the widening of Blackfriars Bridge is in hand for public purposes, and note should be made of the successive increases demanded at Charing Cross, Cannon Street, and Grosvenor Road of the bridges for railway traffic, besides the unnatural and happily invisible tubes of the City and South London, City and Waterloo, and Baker Street and Waterloo electric railways.

The erection of two proudly fine bridges marked the beginning of the nineteenth century which ere its course was fulfilled was marked by great artistic movements, by such awakening and rekindling of sympathies, by recognition of what is imperial in the wealth and power of England and progressive in social amelioration and refinement. Works of marked architectural character and purity proceeded for a while with the development of engineering science which combined with current architectural maxims and details, modifying each with each as at Southwark, Westminster, and Blackfriars; sometimes refusing all artistic assumptions and sometimes flirting with them in the railway bridges; rising to great engineering achievement, as in the Tower Bridge, clothing its machinery with the pageantry of mediæval association; at Vauxhall waiving architectural traditions to seek some new art junction with metalwork; finally, for comfort, speed, and the now necessary avoidance of architectural controversialists, procuring complete alleviation from all the pains of this thorny subject in subaqueous borings.

Would that this non-provocative solution, both economical and scientific, could commend itself even now to the railway companies, whose sins against the amenities of the noblest of metropolitan rivers have seemed so unavoidable and are yet so grievous!

It is not unnatural, therefore, to revert to the pair of great masonry bridges with which the century opened, beyond the attainment of which no subsequent erection advanced, and which, we fear, could not have immediate successors if even the means and the opportunity for their repetition were now afforded. The singleness of purpose in expression attained by consistent concentration of study upon the classic orders, the fine appreciation of subtle delicacy of proportion, and the beauty and refinement of line evidenced both by Waterloo and London Bridges, are not the product of a single effort on the part of a talented designer. The necessary atmosphere both for the student and for the public is now lacking to us, and, unless by sheer and feebly conceived copying, it is against all the probabilities of the time that similar bridges could be produced for or by public bodies of the twentieth century. Our eyes are enlightened, the honey has fermented, our palates are tinctured, and the light diet of pure form palls. Not but there are attempts at naïve simplicity, which result in emptiness of interest, or that the revolt against the picturesque (save the mark!) and meaningless ornamented construction is not healthy; but the stepping-stones to such refinement and power of design are by the considered elimination of forms that become superfluous and by the emphasis consequently attained by that which remains. Initial emptiness is barren of suggestion, and emphasis by imported rather than integral ornament is soon discounted. The architectural atmosphere is largely the product of the architect; the architect is ultimately, perhaps now as always, the pupil of masters, that is, of a school, and the school is the home of doctrine. The fear of dogma in architecture has followed its misapplication, and glancing from Waterloo and London to Westminster, Blackfriars, and the Tower Bridges the change both of temperature and of the constituents of the architectural atmosphere may be noted with some sense of demonstration. Something happened to make these later works possible which had not been in the slighted early years of the last century.

Our subject is drawing to the consideration of the further needs of London traffic in bridge building, and assuming for the moment the question of material to be entirely settled in favour of masonry, we may therefore with earnestness review the results upon the bridge builders of our fathers' generation of their architectural faiths and heresies. Have our departures from traditional lines of study, and our easy rejection of the school of classic thoroughness in favour of the enthusiastic antiquarianism of the modern Gothic delusion, made it easier for public taste to foresee the failure of great bridge designs attempted in an artificial atmosphere of unreality and affectations? Conflicting architectural standards have

wrought not unnatural confusion in the childlike minds of artistic engineers, and while we mock at their ornaments, despise their parapets, and belabour their turrets with the battering-rams of professional criticism, the world may well laugh if, in up-to-date enlightenment, we can only advise them, in consequence, to rub out all the architecture and let the naked truth speak for itself.

Architects might be sheltered in such an alternate hot and cold treatment of iron and steel work design, but assuredly ought to have a doctrine according to knowledge for the architectural problem of the æsthetic treatment of masonry bridges.

We may re-erect the iron bridge at Vauxhall in steel and survive the ordeal to our own satisfaction, but could we attempt a new masonry bridge from the Embankment, in view of Waterloo, without becoming conscious of how much farther down stream the Tower is from Waterloo, or even from London Bridge, to the architect, than it appears to be to a more irresponsible passenger?

The conclusion might appear reasonable that the succession of iron to the inheritance of stone has inevitably severed traditional descent in design, and that London Bridge is as necessarily the last word in masonry as Vauxhall is the latest in steel. The long succession of London iron and steel bridges, broken only by the granite bridge at Putney, points in this direction, as well as indicates that if you want another there is nothing else to be done but to repeat the Swan-song and again reproduce the record of London Bridge. Truly a miserable confession of the decay of genuine inspiration if it ever comes to this. There is inspiration and stimulus enough in the modern design of steel bridges of the world from Niagara to the Zambesi, great in variety of constructive principle and æsthetic expression, to potently negative the fear that the subject is uninspiring or fulfilled. But is bridge building still in the sphere of architectural practice? Granted the requisite and unaltering conditions of the constructive design of great arched structures, is there now the power to express the delight of the architectural mind in their fashioning and refining, and when necessary of emphasising them with noble decoration? How much that the Renaissance drew from its Roman ancestor of bridge-building instinct was unconsciously sacrificed when the Gothic revivalists put themselves and their national art into gondolas at the bidding of impulse in order to pass beneath a Renaissance Bridge of Sighs! Architects have since then gone up, rather than down, the stream of time in search of progress, blindly struggling against tide, aided only by fickle winds.

With diffidence, be it suggested, we have found a *pis-aller* in the Ponte Vecchio, and are prepared to find shelter in picturesque design, of truly infinite possibility, from the barrenness of our disordered styles. All this is feasible, and in good strong hands may be noble and enduring; but the sad inevitableness of the multiplied temptations to bad architecture, and of irregulated chimney-stacks and external sanitary works, must call for a pause if the suggestion so charmingly rendered by our President advances. Street bridges are a novelty; welcome, indeed, in view of many problems alike practical and artistic, and as propounded by Messrs. Collcutt and Hamp singularly attractive, but the nobler quality of the unburdened causeway must remain the ideal architecturally, as it is likely to do practically.

It is, is it not, vain to preach here a return from the involuntary exile or actual captivity of antiquarianism in design to the Fatherland of our ever-living present. Vain because we have already burst the bands which connected our life with the progress of the age, and cannot see its reconstitution; any recommencement of mental training, any limiting of vision, to what Chambers, Rennie, and Cockerell saw when we first broke away and, turning the head, looked backwards, seems now so impossible. But it is not really so; the appeal of architecture is universal if only because of its development wherever civilisation is on the forward march. The tradition broken in England has been essentially maintained on the

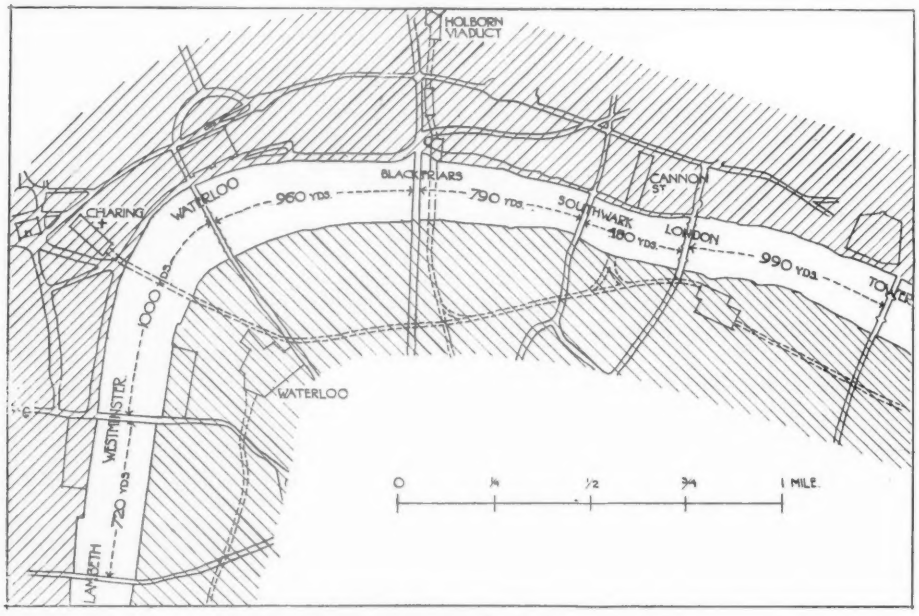
Continent, and much that may have been missed, notwithstanding, in the romantic development of Ecclesiastical and Domestic architecture and decoration, has been compensated for in the sustained progress of civil and imperial art. There are many modern masonry bridges in Europe which, though lacking the grandeur of scale possessed by London or Waterloo Bridge, because lacking such a river, are subtly instinct with modern expression and movement of design. Among the bridges of Paris will be found refreshing suggestions of complete accord with the development of current architecture, in most cases calling significantly upon sculpture, in method entirely of the present age, for sweet and gracious emphasis of idea. German bridge construction, too, with its more practical expressiveness, is strong, though the examples that rise to mind are mere combinations of monumental abutments to iron structures, but always vitally expressive. Effort for originality in masonry bridges is not the keynote needed. Originality has come powerfully into the modern design of steel structures, always bringing with it interest and often complete artistic satisfaction ; but stonework, crying always with a voice from the ages, is harmonious only when tuned to more familiar chords, and demands, not the courageous science of the engineer, so much as the cultivated knowledge of the studiously receptive artist.

Could not serious experiment be made with vast bridge design for masonry ? Lack of experience would seem to demand it of us as a necessary course of study, while the presence of opportunity may make its neglect disastrous ! Are we prepared to claim fitness for so great an undertaking as the assured quality of any successful or eminent practitioner to whom such a task may perchance be allotted ? If London requires bridges, has London other ideals to offer than those results of that architectural atmosphere for which in the greatest measure we are ourselves as architectural thinkers and practitioners responsible ? The matter is becoming urgent, and the review of means and needs cannot therefore now be inappropriate. Architectural education in a widening sense is upon us ; concentration upon its expression in one of the noblest types of structure becomes both students and authorities.

A claim may now not unreasonably be made for new means of crossing the river on behalf of the ordinary traffic of commerce near the heart of business, where time can be most effectually saved between the north and south sides. No new position for a road bridge has been appropriated between London Bridge and Westminster since the opening of Southwark Bridge nearly ninety years ago, the rebuilding to a greater width of the existing bridges at Blackfriars and Westminster being the only public provision for the extra growth of central London traffic during a century.

With the exception of the distance between London and Southwark bridges, which is a little over a quarter of a mile, the space between the lower bridges averages about half a mile on the centre line of the stream. Of this group Lambeth Bridge can hardly count in its present condition. Thus, where the traffic is heaviest in the City the opportunities of cross-communication are but similar to those of Chelsea and Battersea.

Two propositions for new bridges have of recent years been mooted for consideration and discussion, but each apart from the other. The first was heard of in connection with the planning of Aldwych about ten years ago. The western arm of that crescent attaches itself to the approach from Waterloo Bridge, the widening of which was then under discussion ; while the eastern bow correspondingly supplies the point for a new bridge at Essex Street, where the level permits of an easy spring for a land arch over the Embankment. This site is just midway between Blackfriars and Waterloo, and about a quarter of a mile from each. The project is one that probably has not been lost sight of by the advisers of the County Council, but it seems to have passed out of public notice. It should be revived as complementary to the Holborn and Strand route, to which it would give a more complete usefulness. The



PLAN SHOWING DISTANCES BETWEEN BRIDGES IN CENTRAL LONDON.

direction of its southern approach has been suggested by Mr. Paul Waterhouse as a straight line from the Bethlehem Hospital dome to the central entrance of the Law Courts, but it would seem that one from the Gladstone statue to the Elephant and Castle radiating point would be more serviceable and as good planning.

The second bridge proposition is one that Sir John Taylor, whose great authority on such matters ensures respect, dealt with from the Institute Chair in the adjourned discussion on Mr. Waterhouse's Paper on "The Report of the London Traffic Commission,"* on 11th June 1906, which I venture to quote. He then said:—"I am perfectly satisfied that the blocks which occur both in the Strand and at Westminster in Parliament Street—and I think that the Strand is about the very worst place for a block in London—are due solely to the want of further bridge accommodation. There is no bridge accommodation for vehicles between Westminster Bridge and Waterloo Bridge, and as a consequence we find hundreds of vehicles travelling across Waterloo Bridge and across Westminster Bridge which desire to get to Charing Cross. My impression is that if a bridge could be erected across the Thames from somewhere in the line of St. Martin's Church or King William Street to Waterloo Station it would be of enormous service, and would stop all the confusion of traffic at the ends of the present bridges. I am sure of that, because if you come in a cab or an omnibus from Waterloo, you come across Westminster Bridge and turn up Parliament Street to get to—where? Charing Cross. Precisely the same operation is going on all day long across Waterloo Bridge."

Our President, Mr. Collcutt, in his Address of November 1906 referred to the opportunity which in the previous year seemed to present itself for removing the railway station and hotel at Charing Cross to the Surrey side on to a site adjacent to the terminus of the London and

* Journal R.I.B.A., Vol. XIII., 1905-6, p. 425.

Photo. by York.

THE TOWER BRIDGE.

Photo. by York.

LONDON BRIDGE.

Photo. by Hawkins.

CANNON STREET RAILWAY BRIDGE (LOOKING NORTH).

Photo. by York.

CANNON STREET RAILWAY BRIDGE (LOOKING SOUTH).

Photo. by Hawkins.

SOUTHWARK BRIDGE (LOOKING EAST).

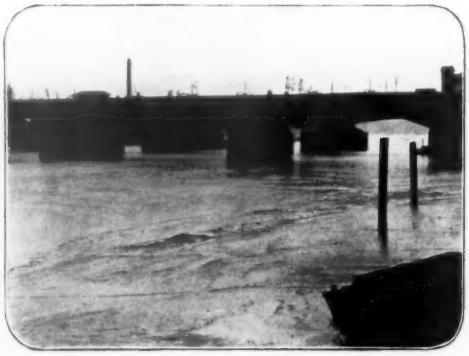


Photo. by Hawkins.

ST. PAUL'S RAILWAY BRIDGE (LOOKING WEST).

Photo. by Hawkins.

BLACKFRIARS RAILWAY BRIDGE (LOOKING SOUTH).

Photo. by York.

BLACKFRIARS PUBLIC BRIDGE.

Photo. by York.

WATERLOO BRIDGE.

Photo. by York.

CHARING CROSS RAILWAY BRIDGE.

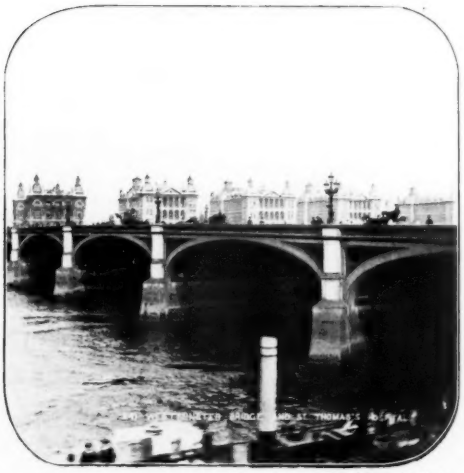


Photo. by York.

WESTMINSTER BRIDGE.

Photo. by York.

LAMBETH BRIDGE.

"Architecture."

"Engineering."

Vauxhall Bridge: Bronze Figures in Panels (F. W. Pomeroy, A.R.A., Sculptor).

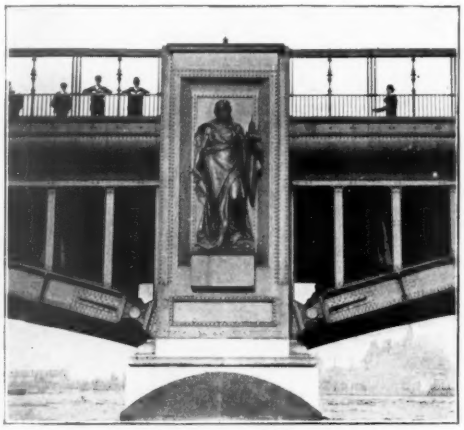
"Education."

"Fine Arts."

Runciman, photo.

Vauxhall Bridge: Bronze Figures in Panels (Alfred Drury, A.R.A., Sculptor).

Vauxhall Bridge.



Vauxhall Bridge : Detail "Architecture."

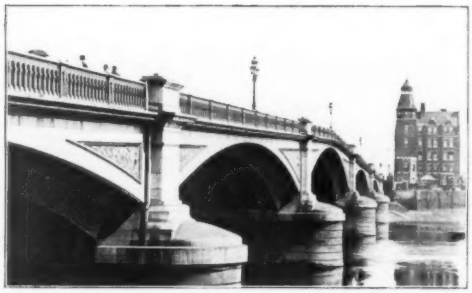
Photo. by York.

Grosvenor Road Railway Bridge.

Photo. by York.

Chelsea Bridge.

ALBERT BRIDGE.



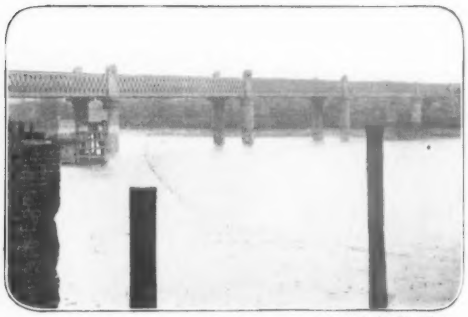
BATTERSEA BRIDGE.

Photo. by Hawkins

WANDSWORTH BRIDGE.

Photo. by Hawkins

WEST LONDON RAILWAY BRIDGE.



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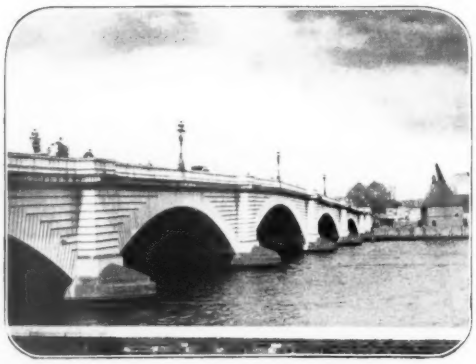
PUTNEY RAILWAY BRIDGE.



PUTNEY PUBLIC BRIDGE.

Photo. by Hawkins.

PUTNEY PUBLIC BRIDGE.

Photo. by Hawkins.

HAMMERSMITH BRIDGE.

South Western Railway. This removal would provide a site and approaches for a public bridge just where it is demanded. The hope may be expressed that the completion of the renewal of the Charing Cross station roof is not a sufficiently important consideration to outweigh the enormous advantages to Central London north and south of the river ensuing from the accomplishment of this proposal. Mr. Collcutt remarked on the financial aspect of the proposition that the present space occupied by the station and hotel is of such enormous value that the railway company, had they adopted the scheme, would have been but little out of pocket.

London needs bridges both at the Temple and at Charing Cross, and their erection on either side of Waterloo Bridge will adjust more approximately the setting out of the distances between them and the rest of the series from the Tower to Battersea, which, as has already been shown, is most unequal and insufficient at the heart of the traffic.

Expansion in value and increase in usefulness is already contemplated on the southern bank of the river by the appropriation of the splendid site for the County Hall which enhances the importance and urgency of the bridges problem. Increase of rateable value, as well as of municipal amenity, will go far to justify taking up as a practical matter the increase of the bridge communications.

Tower Bridge.

Sir J. Wolfe Barry, Engineer; Sir Horace Jones, Architect: 1886–1894: cost £830,000.

One has a lurking fear that works of art much cursed by contemporaries have greater vitality than the more favoured that it appears proper to bless. Posterity has an awkward habit of ignoring the current logic of criticism, by dimming her eyes to what may urgently annoy ours, and discerning greatness where we felt absurdity, and picturesque interest in features which may well fall below the passing standard of attainment and knowledge.

That this will ultimately befall the Tower Bridge there can be at large but little doubt. This generation of architects has seen anathema become recommendation, and the opposite sense adopted without compunction by ardent doctrinaires without much difficulty. The Gothic gimcrack of the granite casings of the towers, the ridiculous departure from faith and truth, unseen and therefore heinous, in that the starling bastion basements of the towers are spacious chambers for the machinery over which the lofty towers are carried on girders, are probably curses harmlessly *en route* home already. It may not be so perhaps, as we cannot succeed in convincing ourselves that the architectural garment is either integral or worthy. But it is an incident only, and a paltry one, compared with the greatness of the structure, its practical conquest of a difficult problem, and its overpowering expression of topsey-turveydom when the huge bascules lift and lower themselves as easily as a pair of hands. What should we say to the architecture of London or Waterloo Bridges if their central spans did the same? Indeed another sort of man is needed to look at the Tower Bridge to whom architecture, as we know it, is of no account.

London Bridge.

John Rennie (*ob.* 1821) & Sons, George & Sir John Rennie, contractors: 1823–1831: £425,081 9*s.* 2*d.*; total cost with approaches £1,458,311 8*s.* 11¾*d.* (vide *Builder*, 8 March 1902).—Widened 1902–5: Sir Benj. Baker: cost (contract) £95,489.

The expression of apparent continuous stability denied to the Tower remains to London Bridge, and is the distinguishing element of its design. Complete sufficient strength, embodied in graceful lines and adequate proportions, characterises this more than any other bridge. Unaffected simplicity is charming where it complies with beauty of form, and is not attained either by the ignorant or by accident. The alteration to the cornice by its gross enlargement to carry widened footways on cantilevers of most weakly drawn profile, and the

substitution of an open for a solid parapet, are deplorable, and the total artistic effect of the bridge has very greatly suffered thereby. The design, as an artistic composition, only just survives the makeshift, and has ceased to give the unalloyed pleasure of yore.

Cannon Street Railway Bridge.

Sir John Hawkshaw: 1863–1866: cost £193,000.—Widened 1882: Mr. F. Brady.

One cannot well predicate elegance for a railway bridge, and the more primitive trabeated horizontal form seems directly appropriate for the long travelling masses of the trains than an arcade which invites refinement of drawing and suggestion in adornment. The iron causeway, with its grim supports conducting to the cavernous mountain of the station, is instinct with expression, and, if it may be said, with architectural fitness. The pseudo-classic order of Doric pillars, with their simple caps, and the heavy but satisfactory bracketings of the cornice under the pathway, are not unsuitable as an iron interpretation of a pseudo-architectural idea.

Southwark Bridge.

John Rennie: 1814–1819: total cost £800,000.

The treatment of the design again evidences the skill and restraint with which the name of Rennie is deservedly connected. The arches and piers are fairly proportioned, and the difference of treatment is clearly marked between the design of the stone and ironwork. The bridge is noteworthy as completely crossing the river in three spans, London Bridge, also by the Rennies, employing five arches, and Waterloo nine. It is to be hoped that London is not to lose all the quite æsthetically satisfactory bridge designs in our generation, but the necessary and now settled rebuilding of Southwark Bridge may involve us in a serious artistic loss which we shall be unable to replace.

St. Paul's Railway Bridge.

Sir J. Wolfe Barry and H. M. Brunel: 1883–1886.

Until the river can be enjoyed, whatever charms the design of this bridge may contain are difficult of access, and one fears unimportant. Its iron arches and stone piers echo Blackfriars Bridge, but have no marked character.

Blackfriars Railway Bridge.

J. Cubitt and F. T. Turner: 1863–1864.

This bridge of lattice girders, with arched crossed connections, iron columnar piers, with inverted curved console-like junction pieces between the girders, has character, and were it not for too earnest attempts to give architectural proportion and decoration to the piers, should gain credit for directness and simplicity of treatment. It is metallic, is manifest engineering, and definitely a railway bridge. It is an odd contrast both to St. Paul's, as a railway bridge, and to its distant brother at Wandsworth, which is a public bridge.

Blackfriars Bridge.

Jos. Cubitt and H. Carr: 1864–1869: cost about £270,000.—Now being widened: Sir Benjamin Baker: estimate £203,000.

This bridge should be a success; the character of the differing materials is preserved. It has detail eminently the product of its period, of the Victorian-Gothic type. The forms are bold and vigorous. Adjectives have been freely applied to it, assorted according to the critical standpoints. So the bridge has interest. It is in the direct line of heritage between Westminster and the Tower Bridge, and we are still waiting for a better modern combination of masonry and metalwork.

Waterloo Bridge.

George Dodd and Sir John Rennie: 1811–1817: total cost £937,392.

There is little remaining to be said in the presence of any view of this successful design. It is a convincing exhibition of the artistic value of that absolute solidity and convincing stability which masonry bridges possess almost inherently. Lightness of line in the nine-fold arcade gives scale to the river and adjustment to the wonderful façade of Somerset House, while the later Embankment wall, itself masterly in simplicity and power, has not injured the grouping. The unique quality of a natural combination with buildings makes stonework the proper material for civil bridges, just as one concedes ironwork without difficulty for those of railroads. The criticism that the twin columns which decorate the piers are superfluous should be qualified by the consideration that, though their main purpose is artistic, their presence modifies the proportions of the piers to the practical extent of subduing them to balance the slender masses of the spandrils and the lightness of the bridge upon the crowns of the arches. Without these columns the bridge would appear thin between the piers. The horizontal line of the bridge, being practically level, without any designed camber, permits the cornice to return and mitre properly on the projecting bays of the piers.

Charing Cross Railway Bridge.

Sir John Hawkshaw: 1860–1864: cost £180,000.—Widened 1882: Mr. F. Brady.

The two great brick piers, remains of the former Hungerford Suspension Bridge, and the use of lattice girders differentiate this from its younger brother at Cannon Street. It also lacks the architectural motive; the cylindrical piers suffer in consequence, and only under and near is the bridge impressive. It unfortunately strides across the finest reach of the Embankment, and diminishes the view of Westminster. On æsthetic grounds alone this railway should be removed to the southern shore. London will then marvel at the view from about the Adelphi Gardens westwards. When this is accomplished, and when the brother to Waterloo Bridge replaces the railroad, the views towards east and west will be added joy of not inconsiderable value to the world. The coming of the County Hall over there must hasten the day; then what a view! Westminster: the charming (how unsuitable an adjective and yet how true) Scotland Yard groups, and Whitehall Court, now completely lost to public appreciation as a whole, with the western expanse of sky behind them. This is for our time to do.

Westminster Bridge.

Thomas Page: 1854–1862: cost £375,189.

We all feel this fine bridge to be wrong, weak in its lines, inappropriate and stupid in its cast-iron spandrils, Gothic traceries and cuspings. We should therefore regard its earnestness as a sign that our position is privileged at the conclusion instead of at the commencement of the Gothic revival. For if we had lived in the days of our fathers we should in all probability have done after their works. Compare with the Gothic of the Tower Bridge again, and be thankful that Westminster is no worse. The mutations of taste give us all thought, and we hope humility.

Lambeth Bridge.

P. W. Barlow: 1862: cost £48,900.

Shortly perhaps to disappear. Sir Benjamin Baker has described this bridge as "the work of an engineer insufficiently experienced in bridge design." So Peter Barlow, F.R.S., will soon appear only as editor on the covers and title-page of "Tredgold's Carpentry" for remembrance. A good masonry bridge is needed here, the position is central to large masses of London, and its proximity to the Palaces of Westminster and Lambeth should properly weigh in the problem.

Vauxhall Bridge.

Mr. M. Fitzmaurice, C.M.G., Engineer; Mr. W. E. Riley, F.R.I.B.A., Architect: 1903–1906.

This is both fresh and refreshing, at once purely mechanical, with some frills reminiscent of passing fancies. The super-balusters, the comparative position of sculptural art, British in feeling and struggling with scale. The whole a great move in the right direction, but rather too close to us to appraise fairly; but how much above what is higher up!

Grosvenor Road Railway Bridge.

Brighton Railway: Sir J. Fowler: 1859–1860. Chatham Railway: Sir C. Fox: 1865. Total cost £245,000.—Widened recently.

Absence of charm or power, even of that commonplace directness which we want from railway engineers, and yet no greater faults or manifest errors of taste. But it seems difficult to become a real failure if there is real transport to be done in a practical structure like this.

Chelsea Suspension Bridge.

Thomas Page: 1854–1858: cost £112,106.

One regrets the encomiums uttered by railway passengers in the trains on the Grosvenor Road Bridge on this design, fearing that the prettiness of the unsuitable and trumpery detail are their cause. Any suspension bridge contains so many simple elements of charm that the obvious nonsense of these pinnacles and domes is provoking, and the want of discernment between what is essential and the trumpery so common. If it was only for Battersea Park, with its brickwork waterfalls and glades, it would be all in keeping, but it crosses the river and demeans a fine Embankment with its fancifulness.

Albert Bridge.

R. M. Ordish: 1863–1873: cost £117,272.

There is a certain grim scale about the curved line of the bridge that deprives the suspension lines of their direct purpose, but the impression remains that the whole is a masterly engineering achievement, though marred by some triviality in detail. A remarkable contrast to its distant neighbour at the other end of Battersea Park.

Battersea Bridge.

Sir J. Bazalgette: 1887–1890: cost £145,000.

One of the artistic sins of the late Metropolitan Board of Works, to be set against such unexplained architectural triumphs as the Victoria Embankment and Putney Bridge.

West London Railway Bridge.

Messrs. Barker & Bertram: 1862–1863.

Little known, but not wicked, it has the character of an economical and serviceable iron road bridge, with large simple arches.

Wandsworth Bridge.

R. M. Ordish: 1871–1873: cost £140,000.

Unfortunately by the gifted author of the Albert Bridge, Altogether unworthy of the Thames, unpleasant, a lattice cage to the passenger, with weakly-looking big pillar supports and absurd capitals; as little known as the former.

PUTNEY RAILWAY BRIDGE.

W. Jacomb: 1887–1889.

This is in evidence from the road bridge adjoining, a sensible railway lattice girder construction on unfortunate pseudo-architectural pillars.

PUTNEY BRIDGE.

Sir J. Bazalgette: 1883–1886: cost £240,000.

Covers the multitude of errors for which atonement is demanded both by Battersea and Hammersmith Bridges, designed by the same engineer. How convincing all this is that Sir J. Bazalgette should only have designed for masonry!

HAMMERSMITH BRIDGE.

Sir J. Bazalgette: 1887: cost £82,117. On old foundations, by Tierney Clarke, 1827.

The list should be extended to Kew, which is beyond the county, if a pleasant finish to the series is demanded, but things are as they are, and London must stand the bad ornament which mars this otherwise doubtful suspension bridge as best it can. There is little excuse and we cannot happily dwell upon it.

There is ample warning as well as encouragement in the London bridges.

DISCUSSION ON THE FOREGOING PAPER.

Mr. HENRY T. HARE, *Vice-President*, in the Chair.

MR. H. HEATHCOTE STATHAM [*F.*] said he had much pleasure in moving a vote of thanks to Professor Pite for his interesting and suggestive Paper. Before coming to the bridges he would make one comment on the list Professor Pite gave of their fine possessions in London architecture. Among them University College was very properly mentioned, and he very much regretted to see in the Royal Academy a design for doing what the architect of that building never intended, namely, the closing up of the quadrangle towards the street by a return building. He sincerely hoped that proposal would never be carried out. It would be destroying the view of Wilkins's best work and taking away from the neighbourhood the one fine open space it possessed. Mere considerations of room ought not to be considered as everything. Coming to the general scope of the Paper, the author rather reminded him of the story of Balaam: "I called thee to curse mine enemies, and behold thou hast blessed them altogether." Seeing that Professor Pite was commencing with Waterloo and London Bridges, and coming down to these more recent ones, he had thought that a more decided contrast would be drawn between the architectural truth and grandeur of the old bridges and the absolute gimcrack of some of the later ones. He could not understand the tone in which Professor Pite spoke of structures like the Tower Bridge and Blackfriars Bridge. As to what he said of the engineering interest and power of the Tower Bridge he was with him entirely; but he had gone over the bridge before it was opened and had seen those piers standing on nothing, and it gave him a shock such as he had never quite got over. And not only was it a shock to one's æsthetic sense to know that they stood upon nothing, but there was also the question, how long would it remain a monumental bridge? They did not yet know the life of a steel structure. When they built a bridge upon a rock they knew it would last five hundred or a thousand years, but they did not know how long that steel structure would remain immovable, or how long it would be before the girders upon which it stood would have to be renewed. There was one point with reference to Waterloo Bridge which was sometimes lost sight of. Part of the grandeur of that consisted no doubt in its unaccommodating horizontal line from bank to bank. He did not know whether it was realised that Rennie got that by making an artificial slope on the south side, and that when a cab horse strained up with one from Waterloo station to the top of the hill he was doing that because Rennie wanted a horizontal bridge. The effect, however, was exceedingly

grand, and he believed it was Canova who said he should have thought it worth while to come to London only to see Waterloo Bridge. With regard to Westminster Bridge there was a curious point. That suffered from the same mistake as the Tower Bridge. Just as the Tower Bridge was supposed to harmonise with the architecture of the Tower and to be Gothic, so Westminster was to be pseudo-Gothic because it was to harmonise with the Houses of Parliament. But the outer arches that one saw were not the real arches of construction: these were inside and were of a different line, and abutted close together upon a skew-back, the result being that any movement from the traffic on one section of the bridge was communicated to the rest; that was the reason Westminster Bridge was never quite quiet. He agreed with what Professor Pite said about Putney Bridge. It was a very fine structure indeed, and Hammersmith Bridge above it was to his mind a terrible contrast; it was a most astonishing thing that the two should have been built by the same engineer. One point he should like to know: Why could they not have masonry bridges in future over the Thames? He believed the great obstacle was what he called the perfectly unnecessary fancifulness of the Thames Conservancy. The Thames Conservancy had got into their heads that the piers must be got further and further apart to allow for the Thames traffic. He would like anyone to stand by the river for two or three hours, somewhere about Vauxhall Bridge, and see what the Thames traffic amounted to—a few puffing steamers dragging two or three barges after them. Were they to have their monumental bridges spoilt simply for the sake of that? Large vessels could not pass above London Bridge, and above it there was really no traffic on the river Thames worth much consideration. He was perfectly certain that masonry bridges could be built, with the same proportions as London Bridge, which would not interfere with the traffic in any appreciable way whatever, and it was simply from an exaggerated notion of utilitarianism that they were to have steel bridges in future because arches were wanted a few feet wider. There was nothing to prevent stone bridges being made without interfering with the traffic of the river. With regard to the railway bridges, he could not help thinking that some of the very plainest of them were more agreeable than what were supposed to be the ornamental bridges, for the exact reason that they were of simple construction; and where they did not go in, as Professor Pite said, for useless capitals they did not offend against taste, because they were simple construction and did not pretend to be anything else. On the whole, whether a bridge be a stone bridge or an iron bridge, it seemed to him that, regarding it as a work of practical use, generally speaking the nearer we kept to plain construction the less likely we should be to offend good taste. However, he quite admired the decoration of the new Vauxhall Bridge with sculpture. He thought that bridge a very great success. Granting that they must have steel bridges at all, Vauxhall seemed to him a highly artistic bridge. It was rather curious, though, that it had not been considered quite who was to see those statues on which some very eminent sculptors had been employed. The sculptures could not be seen from the bank except by special permission, as it was all private. When he went to see the bridge when it was just finished he got permission to go on one of the wharves to look at it, but there were no steamers plying up and down, and no one could see the sculptures. It was almost a question whether they should not be put inside the bridge instead of outside. There was a quantity of very fine sculpture on some of the Seine bridges, but there was a constant traffic of passenger boats up and down the Seine, and everybody could see the sculpture. If more sculpture were to be put on their bridges it would be rather desirable to consider from what point of view it could be seen by the educated class of the public.

Mr. W. E. RILEY [*F.*], Superintending Architect of Metropolitan Buildings and Architect of the London County Council, said it afforded him great pleasure and gratification to second the vote of thanks for Professor Pite's valuable and most interesting Paper. He had taken great interest in the bridges of London since he had been connected with the County Council, and particularly in Vauxhall Bridge. He should like to point out that Vauxhall Bridge as it now appeared received a very considerable amount of bias by the effort in the first place to make it a masonry and subsequently a masonry and concrete bridge. Before he had any connection with the scheme, the piers which formed the foundation for the five-arch spans of the bridge were already constructed and nearly to the water line. It was discovered from the restrictions laid down by the Thames Conservancy that it was not a practicable method of solving the problem. There had to be provided for the purposes of navigation at all times, even during construction, at least three openings, each having a clear waterway of 70 feet in width, one having a clear headway of 18 feet and the other of 15 feet above Trinity high water. It transpired that it was impossible to construct a masonry bridge and keep to those figures the whole time. The entire scheme had therefore to be reconsidered. The Bridges Engineer of the County Council acting under Mr. M. Fitzmaurice was in the room, and would bear him out that it became ultimately necessary to make it a steel arched bridge. The problem which was then presented was biassed, as they would readily understand, by their being compelled to put five spans. It was not generally known that Mr. Norman Shaw had a grand idea

for solving the difficulties of this bridge, and that was to put an immense camber-beam from one abutment to the other, supported at intervals. If that conception could have been carried out, it would have been not only a very fine bridge, but unique in its treatment. The width of Vauxhall Bridge was 80 feet, and they would remember that tramways passed over it. He thought that, even with the present spacing, the deflection of the centre span, had the camber-beam construction been adopted and the requisite headway obtained, would have resulted in a five-inch deflection each time it was fully loaded. This of course rendered that scheme impracticable, and they had therefore to resort to an arched steel construction, which might be regarded as a legitimate solution of the problem. Personally he very much regretted that the emphasis, at any rate of one abutment, which he should like to call the ceremonial abutment of Westminster, had not been approved with pylons. Mr. Statham's criticism of the possibility of seeing the sculptured ornamentation had also been thought of; it had been at one time proposed to put an arched opening at the Westminster end to permit of a continuation of an embankment roadway alongside the river wall running through the abutment for carriage and foot traffic; but the extraordinary cost of this and the inability of obtaining the necessary amount of land rendered it impracticable. It was however made a solid abutment, so he did not suppose the proposal could ever now be carried out. He should like to have entered more fully into the details of the subject, but it was getting late, and he would therefore ask them most cordially to pass a vote of thanks to Professor Pite for his very able Paper, which must have involved an enormous amount of time and study.

Mr. W. C. COPPERTHWAITE, L.C.C. Bridges Engineer, thanked the Institute for affording him the opportunity of hearing a very interesting Paper on a matter which was of interest to all Londoners, but more particularly to himself, for he was to some degree responsible for the way in which those bridges were managed. He had had a great deal to do with Mr. Riley in the matter of Vauxhall Bridge, and he had had more to do than he wanted with the various criticisms which met those whose business it was to carry out any public work in London. It was a very great disappointment to all concerned—it was before his time—that they could not have a masonry bridge at Vauxhall. It was originally intended to make it granite. Then the idea was given up, and it was decided to make a series of mass-concrete arches—not of concrete blocks, but in single masses. That had been done on a small scale in many places in Germany, but never in a place like the river Thames. It would have been carried out in that way, only unfortunately there was a clause in the Act which prohibited the limitation of the headway during construction, and that was fatal to putting any centres in. Therefore they had to think of a method to enable them to put their spans in in the solid without any temporary work whatever. That was the cause of the long delay in the completion of the bridge. But thinking the matter over when he had to take out the steelwork of the bridge, he was not sure that the trouble was not a blessing in disguise, because he did not think they could ever have had a bridge that was architecturally good within the limitations of Vauxhall Bridge, because the Thames Conservancy had so much to say in these matters. With the width of the river at Vauxhall and with the amount of waterway they were asked for, they were limited to 60 feet for the piers. As a matter of fact, they had two piers which were 15 feet 8 inches wide, and they had two other piers which were 14 feet 8 inches wide. He spoke under correction, for he would not pretend to a knowledge of architectural proportions; but if they put up a massive masonry bridge on those light piers it would, he thought, have given the effect of an architectural monument on stilts, particularly at low tide. With this type of bridge at low water those piers would look extremely poor and thin, and for that reason alone it was advantageous to have the steelwork instead of the masonry. With regard to the steelwork itself, he must say they were indebted to Mr. Riley for the way in which the architectural details were worked out. He had always had a feeling himself that the defects of steel bridges were very much more the fault of the architectural profession than of the engineers. When iron bridges were first commenced in the forties the architectural profession, he thought, rather turned up their noses at ironwork altogether. The construction of steel bridges went on for many years, as if it had no connection whatever with matters æsthetic. That had been the difficulty. It was only lately that they were beginning to realise that even in a piece of steel or iron work they could, with proper care, have a certain æsthetic effect and good value as well. He hoped that in the future, if they had any more work to carry out in London, they should have the advice of the Institute.

The CHAIRMAN (Mr. Henry T. Hare) said he could not help thinking with regard to bridges built in a great city like London, that it was rather an architectural problem than an engineering one. The bridges across the river in the middle of London were such important architectural objects that the æsthetic consideration was infinitely more important than any other. Professor Pite had given them a most interesting historical review of the bridges over the Thames, and had told them a great many things that were new to them. He could not quite agree with all his remarks about the iron bridges, and probably what Mr. Statham said must have appealed to others besides himself. Of all the metal bridges over the Thames there

could be no dispute that the one at Vauxhall was the most successful. Nevertheless he could not help feeling great regret that it was a metal bridge and not a stone one. Mr. Riley and Mr. Copperthwaite had explained the difficulties in the way of its being built with stone, and doubtless those difficulties were practically insurmountable. But it seemed to him that those difficulties ought not to have existed. The conditions laid down by the Thames Conservancy were of a purely arbitrary nature, and had no regard to the æsthetic side of the question at all. It was ridiculous to lay down conditions of that sort which seemed to have no regard to the extremely important aspect of what was practically a public monument as well as a public convenience. As far as he remembered, when this question was discussed some years ago, one of the difficulties was not only the practical difficulty put in the way by the Thames Conserservancy, but there was the question of cost. It was said, he believed, that a stone bridge would cost so much more than a metal bridge; and that comparison of cost was based on a granite bridge being so much more costly. What occurred to them at the Institute at the time was that Portland stone might have been used with equal advantage. However that might be, he thought London could congratulate itself that they had got a very excellent metal bridge at Vauxhall. He trusted Mr. Riley might be able to persuade the London County Council to put the pylons not only at one end of the bridge, but at both ends, because pylons at one end only would look rather odd—at all events from the river. With regard to Mr. Statham's remark that the sculpture could not be seen, of course if sculpture were placed on the piers of the bridge it was intended to be seen by the people who were on the water. In the same way, if pylons were put at one end of the bridge it would look very odd to anyone who was on the river if they were not put also at the other end.

Professor PITE, in responding to the vote of thanks, said that perhaps he might venture to say that he had not selected this subject. He had been honoured by a request from the Council, and it was a matter of personal regret to himself, as he was sure it must be to others, that the President, who took such a keen interest in the subject of bridge design, had gone over to the other side of the Atlantic, and was unable to be with them that evening. With regard to the really practical question of whether the next two bridges were to be iron or stone, he did not think they had heard anything that evening that was very illuminating. Of course he had not expected Mr. Riley to tell them when the bridges were to be commenced and what the cost was to be. But the bridges must come. The bridges were wanted, and the public were going to have them. It might comfort the Meeting to know that the Thames Conservancy was sunk in the Port of London Bill. That was going right away up stream, and what the new Port Authority was going to be of course was still in the Bill; but if they did not give us a stone bridge we must know the reason why. He must say he did not understand why Vauxhall Bridge was started as a granite bridge and that the reading of the Act of Parliament was only understood when the piers got up to water level! If Vauxhall Bridge could be started as a granite bridge and got up to the water level as a granite bridge, the next London bridge must be got above the water level as a granite bridge. Then if they liked to make concrete arches with wire and stickjaw on the inside let it be so, but there must be no manner of question that they were not going to stand any iron bridge in sight of Waterloo; and sooner or later might Heaven take that Charing Cross Bridge out of the way! He thought if they worked hard enough at that they would get it, because that was just the spot where a bridge was wanted. They might have to wait for it till they got the bridge at the Temple; they must have one at the Temple first, and there they could have five arches if they liked. For himself he did not realise the impossibility of getting over the river in three masonry arches. Mr. Hare had got pluck enough to sweep the engineers into limbo, into the gas works and sewage tanks, and do all the bridges himself! He really thought that if Rennie could do the river in three arches of that shape at Southwark, Mr. Hare could do it in stone, and block it up on the top to get over Thames Street. This was not exactly joking, because the matter was in the pot. It was only stated in *The Times* on Friday or Saturday last that the designs for Southwark were brought before the Bridges Committee, and he thought the Art Committee ought to ask for them. He did not think it would be amiss if they saw what was in the pot for them at Southwark, and then when they knew that, they should be a little bit nearer seeing what they should have at the hands of the greater authority a little higher up the river. But it must be stone. They must stick to that plea. With Somerset House and the Embankment and Waterloo Bridge, they could not have anything else but masonry bridges off that embankment. They must take to boats again to see the sculpture. The steamboat service had gone, it was true. But they should have to take to yachting on the Thames. Let as much sculpture as possible be put outside the bridges so as to tempt people to take to boating. As to the general atmosphere of criticism with regard to the Tower Bridge and other things, the atmosphere of their meeting-room was peculiar; it was definitely architectural. It was tinctured by what was current in their own minds as architects, and it was speaking in that atmosphere that he cursed and blessed alternately to please himself only, and for that he begged pardon, and returned thanks.

9 Conduit Street, London, W., *23rd May* 1908.

CHRONICLE.

The President.

The President, Mr. Thomas E. Collcutt, left England for Canada last week. During his absence the Presidential functions will be performed by the Vice-Presidents.

The Annual Elections.

The Chairman of the General Meeting last Monday, Mr. Henry T. Hare, in opening the proceedings said he regretted to have to call attention on behalf of the Council to a circular which had been issued within the last few days by a member of the Institute with reference to the annual elections which were now taking place. There could, he thought, be no objection in a general way to a member circularising his fellow-members on a subject he was interested in, but such member ought to be very certain that the statements he makes in his circular were justified by facts. The circular in question referred to the work of the Practice Standing Committee. The members of the Institute Standing Committees devoted an immense amount of time and trouble to the work of those Committees, and he was sure he was not overstating the case when he said that they, as a body, were actuated in a very thorough manner by the interests of the Institute, and that the whole of their labours were devoted to that end. Therefore, when any statements were made with reference to their work, they should be very carefully considered, and nothing inaccurate should be allowed to find its way into such statements. In the circular in question he was sorry to say there were a great many inaccuracies, a great many things which were overstated, and a great many things which were wrongly stated. In those respects alone he thought the circular in question reprehensible enough. But there was another point: this circular had been sent out in an envelope which was a colourable imitation of the envelope issued from the office of the Institute containing the nomination forms, an envelope which could not convey any other impression than that it emanated from the Institute, and was therefore calculated to exercise an influence over those members who were voting, which was an improper influence. Such an action as that could not be condemned too strongly. It was not the first time that a thing of this kind had happened. Some years ago the same course was taken by a member of the Institute now deceased, and at that time it was stigmatised in no measured terms. The Council trusted that in the future this kind of misdemeanour might not be repeated. No doubt most of the members who received this circular would discount many of the statements it contained after what he had said. With those few words he thought the subject had better be left.

Exhibition of M. Hulot's Prix de Rome Drawings.

Announcement has already been made in the Journal that, by the courtesy of the French Government and of M. Hulot, the President had been able to arrange for the exhibition in London, under the auspices of the Institute, of the beautiful drawings made by M. Jean Hulot during his tenure of the Grand Prix de Rome. These drawings, which comprise a series of studies for M. Hulot's restoration of the Ancient Fortified Port of Selinus, were on view at the Paris Salon last year. The original intention was to hold the exhibition early in the present Session. The drawings, however, were required by M. Hulot for reproduction in his forthcoming book on the ruins of Selinus, and the exhibition had consequently to be postponed. M. Hulot now sends word that the drawings will be available for the Institute's purposes at the beginning of July, and the Council are making arrangements for their exhibition from the 13th to the 20th July in the Gallery of the Old Water Colour Society, Pall Mall East. The Committee who have the matter in hand hope to induce M. Hulot to give a Paper explanatory of his work.

Eighth International Congress of Architects, Vienna 1908.

The International Congress at Vienna opened on Monday, the 18th inst., and closes on the 24th. The provisional programme will be found printed in the Journal for the 8th February last. Various railway companies have granted special facilities and reduced rates to members travelling from the United Kingdom, and a personally conducted party left London last Friday, travelling by Dover, Ostend, Cologne, Nürnberg, arriving at Vienna on Sunday. Members travelling independently had the choice of several routes, the tickets being valid for forty-five days, allowing stops at various towns, and the option of returning by a different route. The British Section of the Permanent Committee have arranged for the International Exhibition of Architectural Work a special exhibit of English Domestic Work (exteriors and interiors) executed within the

last ten years. The collection consisted mainly of photographs, their hanging in Vienna being superintended by the Librarian of the Institute, Mr. Rudolf Dircks.

Suggested Minister of Fine Arts.

In the House of Commons last week Sir G. Robertson asked the Prime Minister if he would consider the desirability of creating a Minister of Fine Arts, to be in charge either of a separate department with an expert advisory board, or to hold the position, in conjunction with other duties, such as those of the Chief Commissioner of Works. Mr. Asquith, in reply, said he thought that the duties referred to, so far as the State could usefully undertake them, were adequately discharged by the First Commissioner of Works. The creation of a new office would, in his opinion, be of doubtful advantage, and would lead to an undoubted increase of expense.

The Housing Bill.

In the House of Commons on the 12th inst. Mr. Burns's Housing Bill was read a second time without a division.

The object of the Bill, Mr. Burns explained, was to provide domestic conditions for the people in which their physical health, their morals, their character, and their whole social condition could be improved. It aimed at securing the home healthy, the house beautiful, the town pleasant, the city dignified, and the suburb salubrious. It aimed at securing more homes, better houses, and prettier streets, so that the character of a great people in towns, cities, and villages could be still further improved and strengthened by the conditions under which they lived. On the housing side it sought to abolish, reconstruct, and prevent the slum, and it asked Parliament to efface the ghettos of meanness and the Alsatias of squalor found in many parts of the United Kingdom. It hoped to take effective steps to put down many of the unpleasant features in our purely industrial towns, and to render model dwellings, similar to those that were so prevalent in Germany, less frequent in the future than now. The Bill sought to abolish by-law streets, with little law and much monotony; to get rid of the regulation roads that were so regular that they lacked that line of beauty which Hogarth said was in a curve; to improve the health of the people by raising the character of the house and the home; and by extended inspection, supervision, direction, and guidance by the central authority to help local authorities to do more than they were doing at present. The schemes carried out at Bournville, Port Sunlight, Earswick, Hull, Wolverhampton, &c., showed that even under the existing laws, by-laws, and regulations, given the inclination, the imagination, the means, and the breadth of view, it was possible to do in exceptional instances what the present Bill sought to help other districts less favourably situated to do over a wide area. What a few public-spirited owners, companies and corporations had done, without loss to themselves—on the contrary, it had been economically profitable for them to do it—the Bill would enable a number of other people and associations to accomplish. In a word, the Bill provided—first, the medium of agreement, which, he believed, would prevail in 95 per cent. of the cases; then, failing agreement, conference; and, as the last resort, compulsion, imposed by the central body, which would do its best to pursue the line of least resistance in carrying out its work. It frequently happened that a large owner of land near a town who took a broad and generous view of the development of his estate was frustrated in his efforts because some intervening owner who lacked breadth of view would not co-operate in making the amenities of the neighbourhood as pleasant as they ought to be; and hitherto there had been no means of bringing all the parties together. This was a matter provided for by the Bill.—Mr. Burns referred to the new Victoria Station, which he believed would be, when finished, the handsomest railway station in London. Along the western side of Victoria Station was a red brick and Portland stone wall which was a credit to the railway company and a delight to the passer-by. That was the result of a conference between the County Council and the railway directors. There were hundreds of places round London where, through conferences, there had been this co-operation between owners and the local authority. The City, in conjunction with the County Council, could not have made the enormous transformation that had been made in London during the last fifteen or twenty years without the powers given them by the London Building Act. That Act ought to be extended universally throughout the United Kingdom to every local authority, and this Bill was the first step in that direction.

The Bill also sought power to compel every County Council to appoint a medical officer of health with full powers over housing and inspection, and further it asked that default powers should be given to the Local Government Board over the rural authority and the County Council, and that there should be a limit of time for carrying out any work prescribed. If the work was not carried out, the Local Government Board would in some cases direct the County Council to carry it out, and if they did not do so, would apply for a *mandamus* to force them to take action. Where there was default under Part II.—"Closing Orders and Demolition Orders"—the Local Government Board might require the local authority to take such proceedings as they might direct. If the local authority failed to carry out a reconstruction scheme under Part II., the Local Government Board might again take action by default. All these orders they hoped to make enforceable by *mandamus*. Another useful reform was the interpretation of what was "reasonably fit." There was an implied condition when a landlord let a tenement that it was reasonably fit for habitation at the beginning of the contract, but there was no power to make him keep it reasonably fit during the whole period of occupation, and he thought that ought to be done. They dispensed in several cases with appeals at quarter sessions. The owner would have an appeal to the Local Government Board. They raised the rateable value of houses in London from £20 to £40, and in Birmingham and other places they just doubled the rateable value. The effect of that was to bring in a class of houses in the big towns which had been converted into tenement houses and which it was not contemplated would be occupied in that way when the other Bills were passed. One objectionable state of things, of

which examples could be seen within a quarter or half a mile of that House, would come to an end if the Bill became law. An owner sometimes had several houses unoccupied for three or four years. They were dirty and untidy, and in many cases had to be shored up. The result of their being left in that condition for a long period was to prejudice adjacent property. That sort of thing ought not to be allowed to go on, and the Bill sought to prevent it.

Touching the method according to which town planning would be adopted and administered, Mr. Burns said the local authority would be enabled to make a scheme as regarded any land likely to be used for building purposes. They placed no limit to the amount of land to be so included in the scheme. That depended on the local authority itself. The scheme would schedule land, and regard would be paid to sanitary conditions, amenity, convenience in laying out land, the provision of spaces, parks, and recreation grounds, and housing. The Bill would enable the Local Government Board to authorise the borough, urban, and rural councils to prepare a town planning scheme in or about the neighbourhood of their area. If the Local Government Board were satisfied, the local authority, either by itself or in conjunction with other local authorities, might make a scheme. Failing local action, the Local Government Board could call upon the local authority to prepare a scheme. The Bill would work thus: When a local authority had determined to make an application for town planning, they would serve notice on the local landowners and other people affected. An inquiry would be held, at which owners, the local authority, the ratepayers, the artist, the architect, and the engineer would have power to make representations. He believed that in 90 per cent. of the cases town planning schemes would be brought about by agreement. Exchanges of land could be arranged. Recalcitrant owners who allowed four or five acres to prevent the development of five hundred or a thousand acres would have notice served upon them of compulsory purchase. The main object of the Bill, both in regard to housing and town planning, was to secure by agreement the co-ordination of various and conflicting interests, and to deal with objectionable owners by buying them out or by means of an exchange. He asked the House to sanction what he had been engaged upon for some time—the reorganisation of the housing and public health departments of the Local Government Board. Within the last two years, without any fuss or limelight, a hundred housing schemes had been undertaken, projected, or sanctioned by the Board. When the Bill had passed it was proposed to consolidate it with other housing Acts, this Session if possible.

Public Offices Sites Extension.

The Public Offices Sites (Extension) Bill was read a second time in the House of Commons on the 13th inst., and has been referred to a Select Committee of five members. Mr. L. V. Harcourt, the First Commissioner of Works, stated that its object was a continuation of the late Government's plans, which were founded on the Report of the Committee of 1897. It is a plan to complete the block of new public offices which have just been finished and uncovered at the corner of Whitehall down Great George Street as far as St. James's Park. It is proposed to abolish Delahay Street, which will no longer be wanted as a public thoroughfare. The Government have acquired the building of the Institution of Civil Engineers, making an arrangement to rehouse them on the south side of Great George Street, and advantage will be taken of that operation to widen Princes Street, which will be a considerable public convenience. In the new building are to be housed the Board of Trade and, if possible, some of the smaller offices, such as the Office of Works or the Board of Agriculture, which are stated to be greatly in need of further accommodation. The new building, Mr. Harcourt stated, is to be completed in accordance with the designs of the late Mr. Brydon. The cost of erection is provided for in the Budget, and a clause setting aside 600,000*l.* out of the realised surplus of last year is to appear in the Finance Bill. The Bill contains a provision for making an enlargement of the Patent Office, which is required owing to the greater amount of work entailed in that department by the Act of 1907. Power is taken by the Bill to stop up part of a nominal road in Scotland Yard which passes behind a disused police building, and an improved thoroughfare is proposed through old Scotland Yard leading to Whitehall and the Embankment for the use of the public. Mr. Harcourt stated that by doing this and stopping the part of the disused road and using the old police building he should be able to accommodate on the site a new Army recruiting station, and in that way get rid of a large remnant of St. George's Barracks and of the recruiting station behind the National Gallery. This will remove from the National Gallery and the National Portrait Gallery a building which has always had some element of risk from fire, and a site will be gained for the extension of both these galleries in the future.

Southwark Bridge.

A meeting of the Bridge House Estates Committee was held on the 13th at the Guildhall under the presidency of Mr. Under-Sheriff Algar, the Chairman, for the purpose of receiving designs for the reconstruction of Southwark Bridge. Three designs were submitted by Mr. Basil Mott, the engineer consulted by the Committee. The estimates for the proposed work varied between £1,000,000 and £800,000. The Committee resolved to receive at the Guildhall a deputation from the London County Council, who wished to place their views on the subject before the Corporation.

Fire Tests on Building Material.

The Washington correspondent of *The Times* states that the United States Government has been making some interesting tests as to the fire-

resisting qualities of various kinds of building material. For a long time its engineers have maintained that even the modern so-called fireproof structures are not worthy of their name, and that, though their construction facilitates the smothering of fires which originate in them, they would be unable to resist the heat of a large conflagration. An attempt, therefore, is being made to find some material which will be absolutely fireproof. Chicago has been the scene of the first series of experiments, conducted with the co-operation of the National Board of Fire Underwriters and the National Fire Protection Association.

Thirty panels were tested of various building materials, including concrete building blocks; common, hydraulic-pressed, and sand-lime brick; concrete of gravel, cinder, limestone, and granite; glazed and partition terra-cotta tile; sandstone, granite, and marble building stone. These were placed in a sliding panel, which formed one side of the furnace. Gas flames were forced against them by blasts of air in such a way as to obtain a maximum temperature of 1,700 degrees F. within half an hour of the beginning of the tests. After two hours the panel was extracted and subjected to a jet of water with a pressure of 50 lb. to the square inch. In the opinion of the engineers this was a more severe test than could be reached in an ordinary fire, though not perhaps in a wind-fanned conflagration. None of the materials passed the ordeal unharmed.

The brick panels appear to have withstood the tests better than any other material. Two kinds were tested, one made of a new brick, and the other of a brick that had been in an engine foundation for some years. The latter best resisted the heat. Fifty per cent. of the new bricks were split, while 60 to 70 per cent. of the old ones were not damaged. Those at the back of the panel were entirely unaffected. Hydraulic-pressed bricks stood the test best of all. No damage was apparent whatever after the firing and before the water was applied, and 70 per cent. of the bricks were found to be intact after the quenching of the flames. There was apparently little difference in the strength of the bricks before and after firing.

Natural building stones showed the worst behaviour of all the material tested. They were almost completely destroyed. A sandstone panel entirely collapsed soon after the heat was applied.

Difficulty was found in determining whether the concrete made from limestone, granite, gravel, or cinders sustained the least damage. The surfaces were all rather badly pitted by the fire and washed away by the stream of water. The test was unfair to cinder concrete, as the sample of cinder was poor, containing a large percentage of unburned coal, which ignited and left the surface of the concrete much pitted. The granite concrete was perhaps the best. The damage in no case extended far into the concrete, probably not more than one and a half inches, and the evidence shows that even at this depth the temperature was comparatively low. Linen tags which were placed in the hollow concrete blocks when they were moulded emerged from the furnace undamaged. Sometimes, however, these blocks split after being subjected to the fire and water test.

As far as the experiments go they appear to prove the contention of Government experts to the effect that a really fire-proof building material has yet to be found.

Fire-resisting Properties of Reinforced Concrete.

The fire-resisting properties of reinforced concrete as applied to construction work are clearly demonstrated by a fire which occurred in some premises devoted to motor-car work at Dayton, Ohio, and reported in a recent issue of the *Engineering Record*. The main portion of the factory consists of a mill-construction building of five stories and basement, adjoined by a reinforced concrete building erected during the summer of 1907. The only feature of the latter building which was not absolutely fireproof was the window frames and sash, which were of the ordinary wood construction. On 21st February fire broke out on the fourth floor of the concrete building. The fire soon spread over the entire floor of that building, and, not being impeded in its progress by fire-doors between the new and the old erection, the flames were soon communicated to the old building, where the greatest damage was done. The fire burned itself out on the fourth floor of the new building, and in burning out the window frames and sash the flames licked outward and upward, and in some few instances burned the sash out of the windows the above on the fifth floor, but not so seriously as to cause material damage. It was not long before fire was confined to the old building, and in less than three hours the fourth and fifth floors and roof had fallen down on to the third floor, a charred mass of ruins. The fire was stopped at this point, but the building is a wreck. The heat under the ceiling of the fourth floor of the concrete building was so intense that some iron pipes were bent completely out of shape, in some instances having sagged down to the floor. It is interesting from the manufacturers' standpoint to know that within two days after the fire the machinery was running in this building and operations were resumed. In order to ascertain whether the structure had been damaged to any extent or had been weakened by the fire, it was decided to make a load test on the floor above that on which the fire originated. The building was designed for a live load of 120 lb. per square foot, and the girder over which the test was made had a span of 22 feet. Equal areas on both sides of this girder were loaded so as to give a uniformly distributed load. The area covered

was 352 square feet, on which were piled 77,250 lb. of pig iron and other heavy material. This gave a uniformly distributed load of about 218 lb. to the square foot, and under this load the girder in question showed a deflection of only $\frac{3}{16}$ inch at the centre of the span.

Failure of a Reinforced Beam.

At Milan, according to *Il Secolo* of 16th April, Leonardo Leoni, a builder, and his foreman, Giuseppe Bianchi, were indicted for having occasioned the death of one workman and serious injury to another by the negligent construction of a reinforced beam (*un architrave in cemento armato*) on the 22nd of August last.

Among the witnesses called for the prosecution were Professors Cherubino Pinciroli, Ferdinando Leonardi, and Campanini, and for the defence Felice Mazzochi, an engineer. The tribunal acquitted the builder Leoni, but convicted his foreman Bianchi, and sentenced him to three months' imprisonment in the first division.—JOHN HEBB.

Mild Steel embedded in Concrete.

At the instance of Sir John Brunner the engineering department of the National Physical Laboratory have recently carried out a series of tests to determine the effect produced on samples of mild steel embedded in concrete. The report, signed by the Director, Mr. R. T. Glazebrook, is as follows:—"A strong wooden box was made and divided into five partitions, each partition being 12 inches long, $7\frac{1}{2}$ inches wide, and $7\frac{1}{2}$ inches deep. Specimens of mild steel of the following dimensions were prepared:—1. One inch diameter, 8 inches long, turned all over. 2. Eight-inch lengths cut from a $1\frac{1}{2}$ inch by $1\frac{1}{2}$-inch bar with the scale left on. The partitions were half filled with good Portland cement concrete, and a specimen of each kind laid on the top, and the partitions were then filled up. This was done on 21st December 1906. The blocks were covered with water several times a week for a year, and for three months afterwards were left in the open subject to the weather. On 20th April one of the blocks was removed from the box and broken up, and the specimens removed. On examining the specimens carefully no trace of any action by the cement could be detected. The turned specimen was practically as bright as when it was put in, and the scale on the rough specimen was undisturbed. To test the possibility of any slight action the surface of the turned specimen was polished and etched and examined under the microscope side by side with a specimen of the same material cut from the centre of the bar. No difference in the micro-structure of the two specimens could be detected, and the conclusion is that in sixteen months no action has taken place between the metal and the concrete. It is proposed to immerse one of the remaining blocks in the comparatively warm water of the cooling pond for six months, and then to examine the specimens."

Proposed Reformation Memorial at Geneva.

The programme is to hand of the competition which is being promoted by the Association for the Monument of the Reformation in Geneva.

The Association, which was organised at Geneva in 1906 for the purpose of preparing the forthcoming Celebration of the 400th Anniversary of Calvin, has decided to mark that event by the erection, in honour of Calvin's work, of a monument planned on broad historical lines, which will recall to the public mind, in a manner at once popular and durable, the names and influence of the Reformers in all parts of the world. The appeal the Committee then made to the whole Protestant world has been readily and generously responded to, and it is hoped that subscriptions may amount to from four to five hundred thousand francs. The Committee feel that the presentation of a plan, giving artistic expression to the conception it is desired to realise, will evoke a generous response from all quarters, and that the necessary funds will be forthcoming. To this end artists are invited to take part in a Competition for the plans, and the Committee give the following indications as to the general character of the monument:

The monument must be in celebration less of a man than of an idea, but at the same time it must be an *historical* monument, the commemorative value of which should be drawn from history, and represent figures and facts at once precise and concrete, and as expressive as possible of the reality. It must be a *popular* monument, easily understood by all, in conformity with the general instruction given in public schools; and it should be an object-lesson alike to the Genevese and to foreign visitors. This double character necessitates a monument in which sculpture must play the principal part and allegory almost none, and the essential feature should be historical figures. . . . As to the historical figures, the statue of Calvin should of course be amongst them; but as the monument is not to be in the strict sense of the word a memorial to Calvin, the Reformer should be surrounded by his most influential fellow-workers and followers in Geneva and throughout the whole Protestant world. This group, the Committee consider, should only evoke the memory of the individuals as dominated by the idea, and the more comprehensive and representative it is the more would it contribute to the commemoration of the work of the Reformers.

Another and fundamental feature of the monument is that it should be *international*. Along with the Reformers should be memorialised those statesmen and soldiers from far and near who have been the great pioneers of the Reformed Faith, the idea being to recall as strikingly as possible the unity of inspiration and of social and political development of the communities which have come under the influence of the Calvinistic Reformation.

The site of the monument is to be that section of the Promenade des Bastions which lies between the main avenue and the Rue de la Croix-Rouge. These being public grounds, much visited and very popular, it is essential to retain their picturesque and historical aspects.

The monument itself must include:

I.—The statues of Farel, Calvin, Knox, and Beza—the four Reformers who made Geneva the temporary or permanent centre of their activity.

These statues must be so grouped as to make that of Calvin conspicuous.

The memory of Luther and Zwingli, as well as the work of Peter Viret, should also be recalled in some manner entirely left to the choice of the artist.

II.—The surrounding statues must be those of the statesmen who were the leaders or declared protectors of Calvinism: Coligny; William the Silent; Oliver Cromwell; one or two of the founders of the colonies in New England; Frederick William of Brandenburg, the Great Elector. These statues should be so placed in the space allotted to the monument that each, while preserving its special importance and without being detached from the *ensemble*, may be viewed as a memorial to the statesman whose features it recalls.

These historical figures it is proposed to execute by stages as the means come to hand. Competitors are only requested to indicate what they consider the best way of placing them.

III.—If the artist desires to introduce a set of bas-reliefs into his composition, the subjects must be exclusively chosen from the history of the XVIth and XVIIth centuries. The Committee would like to see recalled, for example, the following historical incidents:—The Preaching of the Reformed Faith in Geneva; John Knox preaching before Mary Stuart; Henri IV. signing the Edict of Nantes; The Departure from Europe or Arrival in America of the *Mayflower* with the first settlers of New England; The Presentation of the Declaration of Rights (1689) to William of Orange and Mary, proclaimed by Parliament King and Queen of England; The Welcome given by the Elector of Brandenburg to the victims of the Revocation of the Edict of Nantes.

The Competition is to be assessed by an International jury of nine members, Great Britain being represented by Mr. George J. Frampton, R.A. [*H.A.*]

The jury has at its disposal a sum of 30,000 francs for prizes for the best designs. The value and number of the prizes is left entirely to the decision of the jury. Designs must be sent in not later than 15th September next.

Particulars and conditions may be seen in the Institute Library and may be obtained on application to the Secrétariat de l'Association du Monument de la Réformation, 56 Rue du Stand, Geneva, Switzerland.

The Architectural and Topographical Society.

This Society has been founded to make and publish a Survey of Objects of Architectural and Archæological Interest in the British Islands. The Society is controlled by an Executive Committee, assisted by an Advisory Council, at present consisting of Lord Avebury, Sir A. S. Scott-Gatty, Sir Aston Webb, R.A. [*F.*], Messrs. Francis Bond [*H.A.*], J. A. Gotch, F.S.A. [*F.*], T. G. Jackson, R.A., Professor W. R. Lethaby [*F.*], Mervyn Macartney, F.S.A. [*F.*], and E. S. Prior, F.S.A. [*F.*]. Mr. Wilfrid I. Travers [*A.*] is Hon. Secretary, and the Society is located at 33 Old Queen Street, Westminster. The subscription is 10*s.* 6*d.* per annum.

It is proposed to collect, and keep for reference in the offices of the Society, measured drawings, sketches and photographs, together with an outline map showing the positions of places described or illustrated. The Society accordingly appeals to all who have any connection with ancient buildings, whether official or otherwise, to all clergymen in whose charge there are churches or other buildings of interest, and to all architects entrusted with alterations or conservation, to assist in the work. Of those whose position is that of owner or trustee the Society ask that they should only grant permission for making records of the monuments under their charge on condition that copies of such records are deposited with the Society. Architects are asked to deposit either copies, or the originals, of any notes made previous to any alterations in the Society's Library.

A further object of the Society is the publication of a quarterly journal, and the first number of this has just appeared under the title of "The Architectural and Topographical Record." Its contents include descriptions and records of the parishes of Worth Matravers and Corfe, in the county of Dorset, with pen-and-ink sketches, plans, &c. by Mr. Wilfrid I. Travers, and papers dealing respectively with the parishes of Kells, Jerpoint Abbey, Newtown Jerpoint, and Callan, in the county of Kilkenny, by Mr. Conor O'Brien.

Screens and Rood-lofts.

In the golden age of English church art, the latter part of the fifteenth and the early part of the sixteenth century, the one supreme achievement—always excepting the stained glass—in the great parish churches of East Anglia and Devon was the rood-screen and rood-loft. The subject, however, has never been dealt with in book form, except in Pugin's small volume, published in 1851, which is mainly illustrated by Continental examples. Recent contributions by Mr. F. Bligh Bond [*F.*], Mr. G. E. Fox, Mr. Aymer Vallance, and Dr. Cox have added much to the knowledge of this interesting subject, and a book is promised in a few days by Mr. Francis Bond [*H.A.*], author of *Gothic Architecture in England*. As in the larger work, the writer employs the historic or evolutionary method, showing how roods and rood-beams existed in the early Christian basilicas, their removal to the chancel arch, and their development into rood-screens; the superposition from the fourteenth century of a parapeted loft; the destruction of the lofts at the Reformation or their transference to the west wall of the nave, *e.g.* at Strensham, where the rood-screen and loft were moved bodily, and where the parapet of the loft still retains its tier of painted saints; from this it is but a short step to the galleried churches of

Wren, Hawksmoor, and Gibbs. The book is to contain 152 illustrations from photographs and measured drawings, and will be published by the Oxford Press.

Municipal Exhibition.

The first Municipal Building and Public Health Exhibition, held at the Agricultural Hall, and closed last week, although on a comparatively modest scale, suggests possibilities of important developments in the future, for the growth of municipal enterprise has reached a point which gives ample scope for an exhibition dealing with the many-sided activities of public bodies. The floor space of the Agricultural Hall was well occupied with exhibits illustrating the latest practice in town lighting, street paving and cleansing; while traffic problems and sanitary science were also conspicuous features. The tramways department of the London County Council was represented by fully equipped models illustrating the conduit surface contact and cable tramway systems, the Westminster City Council by illustrations of road construction and models of subways, while provincial corporations also contributed to the loan section. The advantages of concrete for building construction were illustrated in several exhibits. Among the lectures delivered was one on "Reinforced Concrete in Municipal Engineering," by Mr. W. Noble Twelvetrees, which appeared in full in some of the building journals last week.

The late J. J. Stevenson [*F.*].

We have to record, with deep regret, the death of Mr. John James Stevenson, F.S.A., which occurred at his residence, 4 Porchester Gardens, on the 5th May, at the age of seventy-six. The Hon. Secretary, Mr. Alexander Graham, F.S.A., in announcing the sad event at the General Meeting last Monday, said:—There are probably few names more familiar to us or more deserving of our respectful regard than the name of our late colleague, Mr. J. J. Stevenson. He was a man of considerable attainments, and, like a true Scotsman, very earnest in everything he did and a very close reasoner in working out anything entrusted to him. He was a very skilful architect, and I should like to say a few words regarding something in his career which is deserving of our attention. I would refer especially to the conspicuous part he took in a movement some forty or fifty years ago with a few others—some of whom, I am happy to say, are still living—with a view to improving house architecture, not only the planning, but the general aspect and the use of materials that for a long time had been out of fashion. I may allude to a very noticeable building in Bayswater Road, called the Red House, which he built for himself, and which altered the character of street architecture in London. This was followed by a number of others of his own design in Kensington and elsewhere, all possessing considerable merit and showing undeniable individuality. I cannot emphasise this fact more fully than by quoting from an excellent work which Mr. Stevenson published on House Architecture as far back as 1880. The quotation which I will give you was evidently written at a much earlier date. He writes: "Within the last year or two there has been a revival of the 'Queen Anne' style for town houses and even for streets. The fashion seems to be spreading. It has received some accession of force from the schools of the London School Board, planted in every district of London. For the architecture of a few of the earliest of these I am responsible, having found by the practical experience of a house I built for myself in this manner that the style adapts itself to every modern necessity and convenience. It is as pliable as Gothic, having inherited its freedom, and is properly a brick style, and therefore specially suited for London houses." I think after this statement we can but give credit where credit is due, for the co-operation of John Stevenson in this movement, which has resulted so satisfactorily to us as architects in recent years, ought not to be lost sight of. We all know that the domestic architecture of England is classed very highly by our brethren abroad. Perhaps in no other country is domestic architecture so much regarded as it is in England. To add to this, to show how much Mr. Stevenson did in this movement, I may say that at the Congress which was opened to-day in Vienna, and from which unfortunately so many of us are absent, the exhibits of British architects are restricted entirely to photographs of domestic architecture in recent years. That shows, I think, that we should give credit to those who pioneered this movement, which has led to such satisfactory results. It only remains for me in my official capacity to ask you to bear in mind the services of our good friend who has gone from our ranks, and to approve of a letter of condolence being sent on behalf of the Institute to Mrs. Stevenson and the family, expressing our very high appreciation of the services rendered by our late colleague John Stevenson in the promotion of architecture and the attendant arts in this country during a long and meritorious career.

The motion was passed in silence.

Professor Beresford Pite [*F.*], on rising to read the Paper printed on foregoing pages, said: "Before reading my Paper I should like to say with regard to our late Fellow, Mr. Stevenson, that a few years ago I had the privilege of very close communication with him at the Royal College of Art in connection with his scheme for the restoration of the Mausoleum at Halicarnassus. The very great interest and the extraordinary antiquarian knowledge that he displayed in that particular subject has had a very considerable influence upon all the notions of what form that most mysterious but most interesting

building took. Stevenson's name will live in connection with the Mausoleum as an antiquarian. I should also like to mention another matter on which he felt very deeply, and in which he exercised a very considerable influence on the profession at large, and that was in restraining the over-restoring zeal that beset the profession a generation ago. Mr. Stevenson was one of the first with courage enough to withstand the tide that was bringing such a stream of silver and gold into the pockets of the profession."

Mr. Stevenson had been a Fellow of the Institute since 1879. At one time he was a regular attendant at the Institute meetings, and he contributed some very able Papers to the TRANSACTIONS. A sketch of his professional career will be given in the next number of the JOURNAL.

The Colonial Examinations.

The following Probationer, who passed the Intermediate Examination held in Sydney, N.S.W., in the month of December last, has been registered as *Student R.I.B.A.*:—

GREENWELL: CARLYLE [*Probationer* 1907]; "Holston," Powell Street, Killard, Sydney, N.S.W.

ALLIED SOCIETIES.

Royal Institute of the Architects of Ireland.

At the General Meeting of this Institute, held on 7th May, Mr. Frederick Batchelor [*F.*], *President*, in the Chair, the following resolutions were passed unanimously, viz.:—

"That on the earliest opportunity the Council shall take such action as it considers most advisable to secure the inclusion of a Chair of Architecture in the new Irish Universities."

"That in view of the national character and importance of the contemplated buildings in connection with the scheme for the new Irish Universities, the Government be petitioned to promote a competition among architects resident and practising in Ireland for designs for the proposed buildings."

Northern Architectural Association.

The Council of the Northern Architectural Association, in their Annual Report, observe: "It is a matter of general regret that the depression in the building and allied trades is so great, there being little likelihood of an immediate improvement. In view of this the Council have received a representation from the Practice Committee expressing regret that so many young men are entering the profession at the present time, and pointing out the effects of this overcrowding. The Council feel it a duty to the ratepayers broadly, and to the profession personally, to protest most earnestly against the institution of a large, costly, and permanent architectural staff, set up by the Newcastle Corporation, knowing that if public work was placed in ordinary competition the ratepayers and the art of architecture would be benefited. With the employment of private firms the cost would cease on the completion of the work, whereas the cost of the permanent staff never ceases, and architects, who are all ratepayers, are contributing to funds the effect of which is causing their unemployment."

A list of ancient buildings in Newcastle-upon-Tyne and the vicinity has been prepared and issued by the Northern Association for the use of architectural students. Copies may be obtained from the Hon. Secretary, 6 Higham Place, Newcastle-upon-Tyne, price 6*d*.

MINUTES. XIV.

At the Fourteenth General Meeting (Ordinary) of the Session 1907–08, held Monday, 18th May 1908, at 8 p.m.—Present: Mr. Henry T. Hare, *Vice-President*, in the Chair; 28 Fellows (including 11 members of the Council), 37 Associates (including 3 members of the Council), 1 Hon. Associate, and several visitors, the Minutes of the Annual General Meeting held Monday, 4th May 1908 [p. 409], were taken as read and signed as correct.

The Hon. Secretary announced the decease of John James Stevenson, F.S.A., *Fellow*, and referred to his eminent services to architecture, especially in relation to domestic work: whereupon it was resolved that a letter of condolence be sent on behalf of the Institute to Mrs. Stevenson and family expressing the high appreciation of members for the services rendered by their late colleague in the promotion of architecture and the attendant arts in this country.

The following Associates, attending for the first time since their election, were formally admitted by the Chairman, viz. Max Edward Stahl and Leo Sylvester Sullivan.

The Chairman, on behalf of the Council, made a statement characterising as a misdemeanour which should not be repeated the action of a member who had issued, in envelopes colourably imitating the Institute official envelopes, a circular containing inaccurate statements respecting the work of the Practice Standing Committee, such proceeding being calculated to exercise an improper influence over members in recording their votes in the annual elections.

A Paper by Professor Beresford Pite [*F.*], on THE ARCHITECTURE OF THE BRIDGES OF LONDON, having been read and illustrated by lantern views, the subject was discussed, and a vote of thanks passed to the author by acclamation.

The proceedings having terminated, the Meeting separated at 9.50 p.m.